

ABSTRACT OF THE DISCLOSURE

A method is provided for planarizing a structure such as a shallow trench
isolation region on a semiconductor substrate. A semiconductor substrate is
provided having raised and lowered regions with substantially vertical and
horizontal surfaces. The lowered regions may correspond to trench regions. Filler
material such as non-conformal high density plasma oxide may be deposited over
the horizontal surfaces to at least a thickness equal to a predetermined height so as
to provide raised and lowered regions of the filler material. The raised regions of
the filler material may then be selectively removed without removing the filler
material in the lowered regions.